Groundwater Permitting Policies

for

Env-Ws 378, 379, 389, 387 & 388
New Community Well Siting, Bottled Water Source Siting
and
Large Groundwater Withdrawal Permitting

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NEW HAMPSHIRE
DEPARTMENT OF
Environmental Services

Chapter **Page Number**

1.0 INTERIM EMERGENCY WELL SITINGS

Where a water supply emergency for a community water system exists as described in Section A below, the New Hampshire Department of Environmental Services (Department) will approve an interim emergency connection of a new community water supply well following the process described in Section B below. However, all wells for community water systems must ultimately comply with all relevant New Hampshire Administrative Rules, including Env-Ws 372, *Design Standards for Small Public Drinking Water Systems*, and Env-Ws 378-379, *Site Selection of Production Wells for Community Water* Systems. Those producing 57,600 gallons or more over any 24-hour period must also comply with Env-Ws 387-388, *Large Groundwater Withdrawals*.

A. Criteria defining a community well emergency:

- Recent decline in yield of an existing well prevents the system from meeting the water supply needs of existing customers so that bottled or bulk water may have to be used; and
- The following measures have failed to resolve the supply shortfall:
  - Demand management including conservation measures;
  - Changes in operating schedules of existing wells; and
  - Improvements in storage capacity management.

B. Process for interim emergency well siting approval:

1. The water system shall request an interim emergency well siting approval, in writing, and document that the criteria listed in Section A above have been met;
2. The water system shall compile the materials listed below and meet on-site with Department staff to review the well location and sanitary protective area. Department staff shall be available to meet within seven days of receipt of the following materials:
   - Town tax map showing all lots owned or otherwise controlled by the water system;
   - Copies of all easements on land owned by the water system;
   - Copies of all easements the water system holds for land it does not own; and
   - A sketch of the proposed well site showing all land uses including: structures, paths, roadways, rights-of-way, landscaping, surface waters, and drainage ditches associated with potential well locations.
3. The Department will grant Emergency Well Location approval for an available location where sanitary protective area requirements are met. Otherwise, approval will granted for the best available well location where improvements to the sanitary protective radius will minimize the risk of contamination. Any improvements in the sanitary protective area must be documented.
4. The well must be constructed in accordance with We 600 and 700, and sampled by the water system for all Safe Drinking Water Act parameters required by Env-Ws 310 and 319.
5. Obtain approval from the Department for Interim Emergency Connection of the new well after water quality results demonstrate that bacteria are absent from, and nitrogen levels are acceptable within the well water.
6. Within 60 days of approval for Interim Emergency Connection, the new well is disconnected from the system or a final report is submitted in accordance with community well siting regulations (Env-Ws 378 and 379) and when applicable, large groundwater withdrawal regulations (Env-Ws 387 and 388).

2.0 SMALL COMMUNITY WATER SYSTEM REPLACEMENT WELLS (Wells Subject to Env-Ws 378)

There are reduced regulatory requirements for the siting of replacement wells for small community water systems. The Department's policy for siting and criteria for approving replacement wells is described below.

A. A community water system proposing to replace any active production well with a yield of less than 57,600 gallons over any 24-hour period shall submit a request to the Department, in writing, that contains the following information:

1) A description of the project including:
   a. The applicant's name, address, and phone number;
   b. The consultant's name, address, and phone number, if applicable;
   c. The water system's name;
   d. The federal identification number for the existing well being replaced; and
   e. The water supply requirements for the system established during design approval in accordance with Env-Ws 372 or Env-Ws 373.
2) A site plan and description of all land uses in the sanitary protective areas of the existing and replacement wells, and any measures to be taken to achieve compliance with Env-Ws 378.06;
3) A description of the location of existing and replacement wells in relation to the 100-year flood plain and any measures, if applicable, to be taken to elevate the wellhead. All applicable local, State, and Federal permits associated with altering the land elevation must be obtained (i.e. wetlands, land alteration);
4) A description of current water quality in the existing well;
5) A plan for abandonment of the existing well including methods to be used and a timeline;
6) A description of how the well will be constructed in accordance with We 600 and 700;
7) A plan for collecting water quality samples from the replacement well that demonstrates the new well will meet all water quality standards required by Env-Ws 310 and 319; and
8) A written statement from a licensed water well contractor identifying a long-term sustainable yield for the replacement well.

B. The department shall approve the request to replace an active well provided the applicant demonstrates all of the following:

1) The replacement well is installed within 50 feet of the existing well;
2) The replacement well is constructed with a well screen of similar diameter and length and is placed within the same vertical location as that of the existing well;
3) The replacement well under pumping conditions will impact groundwater hydraulics in a similar manner as the existing well;
4) The existing well is abandoned in accordance with We 600;
5) The project is necessary to maintain the capacity of an existing source and will not be used to expand the water system or for water use beyond the approved or established capacity of an existing well;
6) The replacement well will not be subject to flooding at the 100-year recurrence interval. All applicable local, State, and Federal permits associated with altering the land elevation must be obtained (i.e. wetlands, land alteration);
7) The sanitary protective area requirements established in Env-Ws 378.06 are met. Otherwise, approval will granted for the best available well location where improvements to the sanitary protective radius will minimize the risk of contamination. Any improvements in the sanitary protective area must be documented;
8) There is no contamination in the vicinity of the well that is likely to reach the wellhead as a result of the change in the location of the well; and
9) It is demonstrated that the replacement well produces water that meets all water quality standards required by Env-Ws 310-319.

C. The replacement well shall be permitted for whichever is less:

- The approved capacity of the well being replaced; or
- The long-term, sustainable well yield as stated, in writing, by a licensed water well contractor.

3.0 LARGE COMMUNITY WATER SYSTEM REPLACEMENT WELLS (Wells Subject to Env-Ws 379)

There are reduced regulatory requirements for the siting of replacement wells for large community water systems. The Department's policy for siting and criteria for approving replacement wells is described below.

A. Applicants proposing to replace any active, large production well on a community water system shall submit a request to the Department, in writing. The request should be submitted before installing the replacement well and shall contain the following information:

1) A description of the project including:
   a. The applicant's name, address, and phone number;
   b. The consultant's name, address, and phone number, if applicable;
   c. The water system's name; and
   d. The federal identification number for the existing well being replaced.
2) A site plan and description of all land uses in the sanitary protective areas of the existing and replacement wells and any measures to be taken to achieve compliance with Env-Ws 379.06;
3) A description of the location of existing and replacement wells in relation to the 100-year flood plain and any measures, if applicable, to be taken to elevate the wellhead. All applicable local, State, and Federal permits associated with altering the land elevation must be obtained (i.e. wetlands, land alteration);
4) A description of current water quality in the existing well;
5) A plan for the abandonment of the existing well including methods to be used and a schedule for completion;
6) A description of how the well will be constructed in accordance with We 600 and 700;
7) A proposal for a 48-hour pumping test that will demonstrate if the aquifer responds to the replacement well under pumping conditions in a similar manner as the existing well. This test should, at a minimum, include monitoring of the pumping rate and water levels in the production well at least once per hour during pumping and through at least eight hours of recovery. Additional data must be collected if necessary to evaluate the response of the aquifer to the pumping of the replacement well;
8) A proposal to sample water from the replacement well in order to demonstrate that the well will produce water that meets all applicable water quality standards required by Env-Ws 310 and 319.

B. The department shall approve the request to replace an active well provided the applicant demonstrates all of the following:

1) The replacement well is installed within 50 feet of the existing well;
2) The replacement well is constructed with a well screen of similar diameter and length and is placed within the same vertical location as that of the existing well;
3) Results of a pumping test demonstrate the replacement well under pumping conditions will impact groundwater hydraulics in a similar manner as the existing well;
4) The existing well will be abandoned in accordance with We 600;
5) The project is necessary to maintain the capacity of an existing source and will not be used to expand the water system or for water use beyond the approved or established capacity of an existing well;
6) The replacement well will not be subject to flooding at the 100-year recurrence interval;
7) The sanitary protective area requirements established in Env-Ws 378.06 are met. Otherwise, approval will granted for the best available well location where improvements to the sanitary protective radius will minimize the risk of contamination. Any improvements in the sanitary protective area must be documented;
8) There is no contamination near the well that is likely to reach the wellhead as a result of the change in the location of the well; and
9) It is demonstrated that the replacement well produces water that meets all water quality standards required by Env-Ws 310-319.

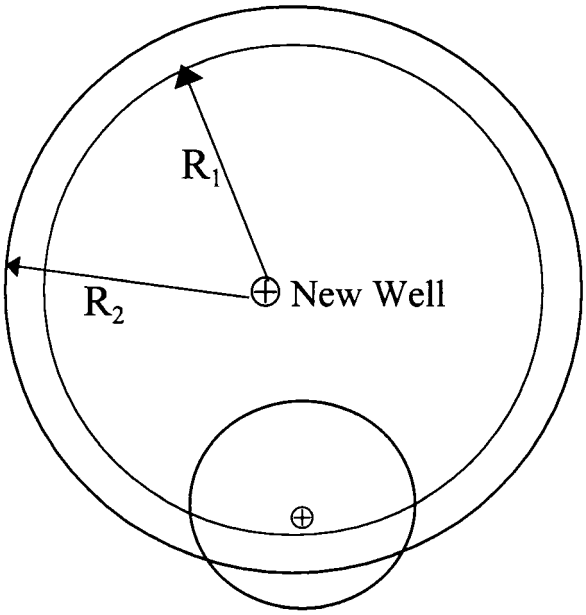
C. The replacement well shall be permitted for whichever is less:

- The approved capacity of the well being replaced; and
- The long-term, sustainable well yield as stated, in writing, by a licensed water well contractor.

4.0 SANITARY PROTECTIVE AREA RADII FOR MULTIPLE WELLS WITHIN A SINGLE SANITARY PROTECTIVE AREA

A. Wells requiring a radius based on combined volumes.

Figure 1

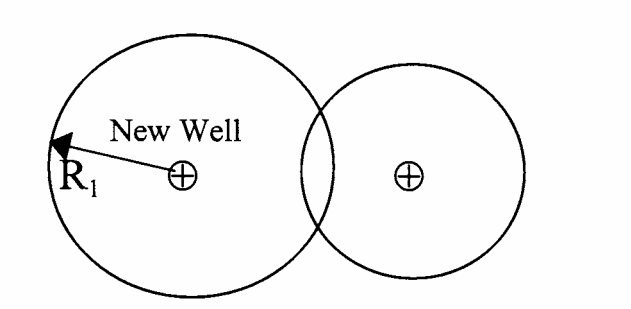


R_1: Radius Based on Volume of New Well

R_2: Radius Based on Combined Volumes

B. Wells not requiring a radius based on combined volumes.

Figure 2



5.0 SMALL COMMUNITY WATER SYSTEMS AND LARGE GROUNDWATER WITHDRAWAL PERMITTING REQUIREMENTS

A. System Capacity and Peak Water Usage

Withdrawals will be permitted under Env-Ws 378, 379, 387/388 in accordance with the system capacity requirements or a calculation of peak design flow. Where the system capacity requirements and calculated peak design flow for a water system are 57,600 gallons or more over any 24-hour period, the new withdrawal will be subject to Env-Ws 379 and 387/388, regardless of the of the number of wells installed to withdraw this volume. However, in instances where the system capacity of a water system is more than 57,600 gallons over any 24-hour period, a developer of a water system may provide calculations and supporting documentation from a Professional Engineer that indicates the peak water use for a particular community water system is going to be less than 57,600 gallons over any 24-hour period. If DES agrees with this analysis, then the withdrawals may be permitted as a small community well system even if the system capacity calculation requirements of Env-Ws 372 requires the well system to conduct a pumping test at an extraction rate that exceeds 57,600 gallons or more over any 24-hour period. This means that the small community well system would still have to demonstrate an ability to withdraw the amount of water required to satisfy the system capacity requirements, but the applicable regulations [Small (Env-Ws 378) or Large Community Well Siting Regulations (Env-Ws 379, 387/388)] would be determined based upon the peak design flow. In instances where the system capacity requirements exceed 57,600 gallons or more over any 24-hour period, but the peak design flow is less than 57,600 gallons over any 24-hour period, and the applicable regulations are therefore determined to be the Small Community Water System Regulation (Env-Ws 378), the Department will require that the delineation of the wellhead protection area, the pumping test, and water quality sampling be completed in accordance with Env-Ws 379.

If at anytime it is determined that well(s) approved pursuant to Env-Ws 378 are withdrawing more than 57,600 gallons a day, then the permit for operating the wells will be revoked, and the wells will have to be re-permitted pursuant to Env-Ws 379, 387 or 388.

B. Mandatory Two Well Systems

Pursuant to Env-Ws 372, a new small community water system that provides water to over 30 connections must construct two wells. The system must be able to satisfy at least 50% of the system capacity requirement with its largest well offline. The net effect of this requirement is that developers may be requesting withdrawal permits based upon the sustainable combined pumping capacity of two wells rather than system capacity requirements.

The permitted production volume of systems requiring two wells will be based upon the system capacity requirements. The permit will allow each well to withdraw water at its sustainable capacity, but cap the total withdrawal volume allowed from all of the wells at the system capacity requirement. For example, a permit may be issued that states “Well A is permitted to withdraw 40,000 gal/day, Well B is permitted to withdraw 42,000 gallons a day, however the combined withdraw rate for Wells A and B shall not exceed 45,000 gallons a day” (assuming 45,000 gallons a day is the system capacity requirement). The pump test will be conducted by pumping both wells at their individual withdrawal rates, even if the combined withdrawal rate will exceed the system capacity requirements and final total permitted production volume. However, the criteria for determining if a withdrawal is large and subject to Env-Ws 379, 387/388 or small and subject to Env-Ws 378 will be determined using the methods described in Section A above.

If it is later determined that the well(s) are cumulatively withdrawing 57,600 gallons or more a day, then the permit for operating the wells will be revoked, and the wells will have to be re-permitted pursuant to Env-Ws 379, 387 or 388.

(Small Community Water Systems and Large Groundwater Withdrawal Permitting Requirements – Continued)

C. Phased Developments

Small community water systems are often associated with small housing or condominium developments. The build-out of these developments often occurs in phases, and blocks of homes are added onto the development over time. Many of these developments construct small production wells (< 40 gallons/24-hour period) to provide water to the new developments. Initially, one or two wells may be constructed in accordance with Env-Ws 378 to provide water to homes constructed in the first phases of build-out. As build-out of the development continues, or as other nearby developments are constructed and request access to the community water system, additional "small" withdrawals are developed to meet the revised system capacity requirement. By the time build-out of a development is complete, the cumulative withdrawals for these types of developments exceed large withdrawal criteria(> 57,600 gallon over any 24-hour period), and may be impacting existing water users and water resources. However, the permitting for each of the withdrawals under these scenarios will have occurred under Env-Ws 378, meaning that: 1) A thorough impact assessment will have not been completed; and 2) The public will have not had a chance to participate in the permitting process.

The determination of large or small withdrawals will be based upon the cumulative permitted production volume of all wells installed after July 1998. For instance, if two wells are permitted in December 1998 under Env-Ws 378 (small community systems), with a total permitted production volume of 50,000 gallons/day, and then a developer installs a new well in December 2000 and requests a permitted production volume of 40,000 gallons a day for the new well, meaning the proposed production volume for all three wells is now 90,000 gallons/day, the third well will be permitted as a large withdrawal, as now the system is proposing to withdraw large volumes of water (>57,600 gallons/day) from sources developed after July 1998. These withdrawals will be required to complete withdrawal testing under Env-Ws 379 and 387/388, which requires 2-7 days of pumping.

D. Disconnected Wells

Multiple wells installed in the same sub-watershed are assumed to be interconnected, regardless of the distance between wells, unless it is demonstrated they do not derive water from the same area. Demonstrating that the pumping of one well does not draw down the water level in another nearby well, does not demonstrate that the wells are not impacting the same hydrologic regime.

Criteria for establishing a "disconnection" will vary from site to site, but generally will consist of, at a minimum, demonstrating differences in water quality (anion and cation distribution plots) and conducting an isolated pumping test with multiple monitoring points to demonstrate that each withdrawal impacts the environment in a different manner and location.

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